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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/789,935

02/27/2004

Minoru Koyama

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12/27/2005

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EXAMINER

LEBRON, JANNELLE M

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/789,935

Applicant(s)

KOYAMA, MINORU

Examiner

Jannelle M. Lebron

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/27/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanematsu et al. (US 2002/0113832).

- **Claim 1:**

Kanematsu et al. discloses a driving device of an ink-jet print head (2 in figure 2) that discharges liquid drops through a plurality of nozzles (200 in figure 2), comprising:

a data storage unit (RAM 33-2 in figure 3) , which stores a data block for liquid drop discharge (page 5, paragraph 0080);

a data determination unit (3704 in figure 5), which determines the stored data block (page 7, paragraphs 0105 and 0108);

a shift register (2-101 in figure 5) which outputs the determined data block to the ink-jet print head (page 6, paragraph 0090); and

a clock signal generation unit (3700), which generates clock signals (371 in figure 5) for driving the shift register (page 6, paragraph 0090);

wherein:

the data determination unit (3704 in figure 5) determines whether the data block has a predetermined array (page 5, paragraph 0085; page 6, paragraph 0090);

when the data block has the predetermined array, the clock signal generation unit stops generating the clock signals (it is inherent that data stored in a latch circuit is transferred to the output when the clock input goes inactive); and

the shift register (2-101 in figure 5) outputs the data block having the predetermined array to the ink-jet print head (page 6, paragraph 0090).

- **Claim 2:**

Kanematsu et al. discloses a driving device of an ink-jet print head wherein:

the data determination unit (3704 in figure 5) determines whether all the data items of the data block are one of discharge data items for which liquid drops are to be discharged, and non-discharge data items for which liquid drops are not to be discharged (page 7, paragraphs 0108 and 0111);

the clock signal generation unit stops generating the clock signals (371 in figure 5) when all the data items of the data block are one of the discharge data items and the non-discharge data items (the clock signal has to be inactive in order for the data to be transferred to the print head); and

the shift register (2-101 in figure 5) outputs one of the discharge data items and the non-discharge data items to the ink-jet print head when the generation of the clock signals is stopped (page 7, paragraph 0108).

- **Claim 3:**

Kanematsu et al. discloses a driving device of an ink-jet print head wherein:
the plurality of nozzles are provided in every block having a predetermined number of the nozzles (page 5, paragraph 0080 and 0085), and a plurality of data determination units are provided in the corresponding blocks (page 4, paragraph 0074 – if each nozzle has a drive circuit, and nozzles are divided in blocks, then every block has a plurality of drive circuits, each one with a data determination unit).

- **Claim 4:**

Kanematsu et al. discloses a control method of a driving device of an ink-jet print head (2 in figure 2) that discharges liquid drops through a plurality of nozzles (200 in figure 2), comprising:

a data storage step of storing a data block for liquid drop discharge (page 5, paragraph 0080);

a data determination step of determining the stored data block (page 7, paragraph 0105 and 0108);

a data output step of outputting the determined data block to the ink-jet print head via a shift resistor (page 6, paragraph 0090); and

a clock signal generation step of generating clock signals (371 in figure 5) for driving the shift register (page 6, paragraph 0090);

wherein:

the data determination step further comprises determining whether the data block has a predetermined array (page 5, paragraph 0085; page 6, paragraph 0090); and

the clock signal generation step further comprises stopping a generation of the clock signals when the data block has the predetermined array (it is inherent that data stored in a latch circuit is transferred to the output when the clock input goes inactive).

- **Claim 5:**

Kanematsu et al. discloses a control method of a driving device of an ink-jet print head wherein:

the data determination step further comprises determining whether all the data items of the data block are one of discharge data items for which liquid drops are to be discharged, and non-discharge data items for which liquid drops are not to be discharged (page 7, paragraphs 0108 and 0111);

the clock signal generation step further comprises stopping a generation of the clock signals when all the data items of the data block are one of the discharge data items and the non-discharge data items (the clock signal has to be inactive in order for the data to be transferred to the print head); and

the data block output step further comprises outputting one of the discharge data items and the non-discharge data items to the ink-jet print head when the generation of the clock signals is stopped (page 7, paragraph 0108).

Claim 6:

Kanematsu et al. discloses a liquid drop discharge apparatus comprising:
a driving device of an ink-jet print head according to Claim 1 (as seen in figure 5 in view of the discussion above), and
a print head (2 in figure 2) having a control unit (31 in figure 3) that drives the plurality of nozzles (200 in figure 2) based on the data block output from the driving device (page 5, paragraph 0080).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jannelle M. Lebron whose telephone number is (571) 272-2729. The examiner can normally be reached on Monday thru Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JML
12/22/2005



LAMSON NGUYEN
PRIMARY EXAMINER
12/26/05